Clean Cities Webinar:

Presenting the Ethanol Business Case to Fuel Retailers

Presented by:

Robert White
Director of Market Development – Renewable Fuels Association

RFA RENEWABLE FUELS ASSOCIATION

Today's Topics

- EPA Proposal.
- E85.
- E15.
- Equipment Options.
- Equipment/Installation Cost.
- Incentives.
- RINs.
- Blending Economics.
- Your Rights.
- The Future.
- Misinformation.

RFA RENEWABLE FUELS ASSOCIATION

EPA's RFS RVO Proposal

RFA RENEWABLE FUELS ASSOCIATION

EPA Proposal

- EPA proposal to lower overall volumes of the RFS are leaked, markets react.
- EPA proposal becomes official, blaming infrastructure/blend wall as excuse, and markets & RFA react.
- Since release of proposal, multiple studies have confirmed “blend wall” can be overcome with E15 and E85.
- Since release, EIA has upped gasoline demand prediction for 2014, requiring adjustment by EPA.
- RIN market was finally starting to do its job!
- If EPA adjusts this year, assumption is RFS will never be more than a 10% (E10) mandate.
- Next generation ethanol will not develop, as no market security exists.
- Hearing in December, comment period ended in January. Now we wait.

RFA RENEWABLE FUELS ASSOCIATION

Petroleum Marketers/Retailers

RFA RENEWABLE FUELS ASSOCIATION

Why Should I Consider?

- Competition is tighter than ever.
- Recent profit margins below dropping.
- Average annual net profit at only $32,000.
- RUL sales top 87.7%, why not leverage other products?
- Ethanol reduces fuel prices, but not margins.
- Lowers your price on the street attracting more consumers.
- You can capture new customers at the pump and in the store.
- Incentives still remain… adding ethanol can lower your infrastructure costs.

RFA RENEWABLE FUELS ASSOCIATION

E85

RFA RENEWABLE FUELS ASSOCIATION

E85

- E85 has changed significantly since its retail debut in 1995.
- RFA is tracking 3,280 stations offering E85 today, new stations each week.
- According to automakers, more than 15.5 million flex-fuel vehicles (FFVs) are on the roads today and number grows each day.
- Commitment by Detroit 3 that half of all LDVs are FFV was tied to infrastructure.
- More OEMs plan to produce FFVs.
- Price point driving increased sales rapidly.

RFA RENEWABLE FUELS ASSOCIATION

E85

- Pricing programs in-place by various retailers showed great success.
- According to RFA retailer survey, average national E85 volume per month at peak time in 2013: **~13,105.**
- Local supply from ethanol plants helps lower costs, increases margin and lowers consumer price.
- There have been and remain pricing issues at many stations.

RFA RENEWABLE FUELS ASSOCIATION

E85

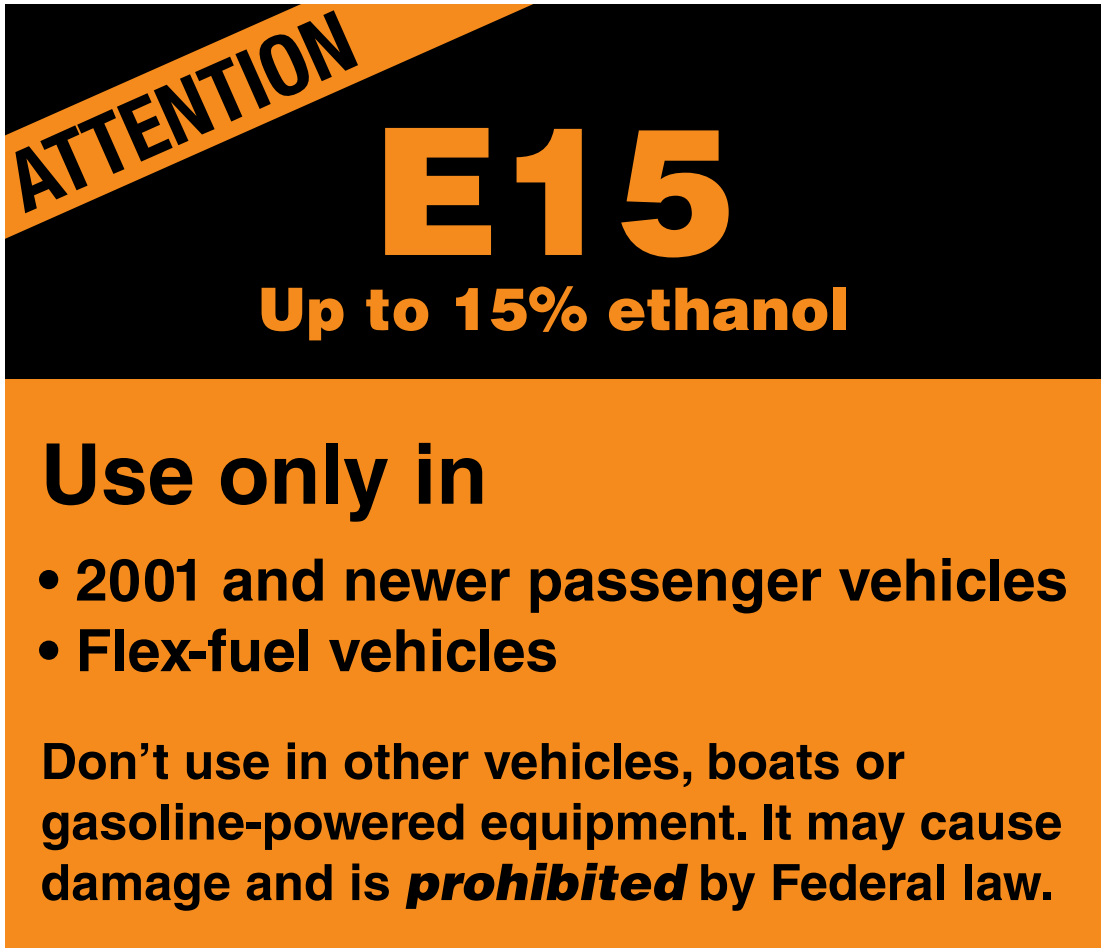
- According to NACS 2013 Consumer Survey, 62% of those surveyed would consider a flex-fuel vehicle. Up from just 38% in 2012.
- More equipment options than ever:
  - Options for conversions & retrofits for existing.
  - Options for trade-ins.
  - Options for purchasing new.
- Not just about consumers… remember, if federal fleets are in the area, they MUST use it when available!

RFA RENEWABLE FUELS ASSOCIATION

E15

RFA RENEWABLE FUELS ASSOCIATION

E15 Label



RFA RENEWABLE FUELS ASSOCIATION

EPA's E15 Decision

- March 6, 2009 waiver submitted to US EPA to increase the allowable ethanol content in **gasoline** up to 15% volume.
- EPA responded October 2010 and January 2011 with partial approval, denial and with conditions:
  - Approved for Vehicles MY2001 and newer, and all FFVs.
  - Denied for Vehicles MY2000 and older; off road engines.
  - Mandated "conditions" for offering E15 called the "Misfueling Mitigation" rule.
  - See: http://www.epa.gov/otaq/regs/fuels/additive/e15/
- **No retailer required to offer and no consumer required to purchase.**

RFA RENEWABLE FUELS ASSOCIATION

E15 in the Marketplace

- First station opened in Lawrence, KS in July 2012.
- Now more than 65 stations in 12 states.
- Sales vary per location, typically average 20% of overall sales, some averaging closer to 40%.
- Overall sales are up meaning new customers, not just converts.
- Higher octane than E10, typically priced lower.
- 65+ million consumer miles, and counting!

RFA RENEWABLE FUELS ASSOCIATION

Federal Regulatory Requirements

- For Retailers:
  - Adopt RFA's Model Misfueling Mitigation Plan (MMP):
    - Template letters drafted.
    - Just need letterhead, station information and signature.
  - Sign-up with RFG Survey Association (RFGSA) for fuel survey:
    - $100 for onsite blenders.
    - No cost for retailers that take delivery of E15.
  - Use E15 Label(s):
    - Available at no cost.
  - Refer to RFA's E15 Retailer Handbook.

RFA RENEWABLE FUELS ASSOCIATION

Equipment Options

RFA RENEWABLE FUELS ASSOCIATION

Existing Equipment Options

- Blender pump is not required, can potentially use traditional dispensers.
- Check compatibility of all components.
- Trade programs exist, refurbished dispensers, i.e., Pump Exchange.

RFA RENEWABLE FUELS ASSOCIATION

Existing Equip. Options - Conversion

- Gilbarco Encore Retrofit Kit:
  - Low Cost.
  - UL Certified.
  - Blends up to E25.
- Davis AirTech E85 Meters for Gilbarco & Wayne:
  - Low Cost.
  - NTEP Approved.
  - Blends up to E85.

RFA RENEWABLE FUELS ASSOCIATION

New Equipment Options

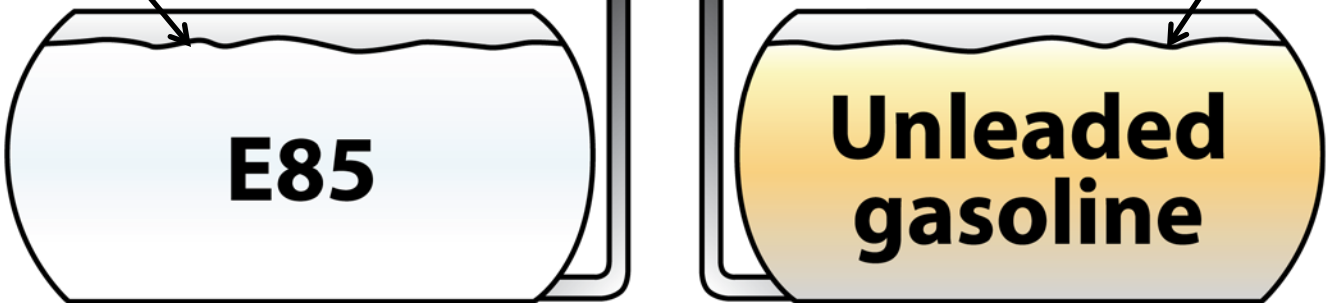
- Three UL certification levels for all equipment, including dispensers and hanging hardware:
  - 87: E10 (tests up to 15% ethanol), being phased out.
  - 87A: E25.
  - 87A85: Covers all blends to 85% ethanol.
- Both Gilbarco and Wayne offer several options.
- Standalone dispensers, MPDs and blenders.
- Could be UL rating options, depending on requirement of your local AHJ. UL actually required in few areas.
- Contact your local equipment provider, or Gilbarco or Wayne directly, for more information on configuration options.

RFA RENEWABLE FUELS ASSOCIATION

How Does a Blender Pump Work?

Options:
- E98*
- E85
- Others

Options:
- Suboctane*
- E0
- E10



RFA RENEWABLE FUELS ASSOCIATION

Blender Pump Calibration

- Blender pumps must be calibrated to deliver the right percentage of ethanol in each blend, especially if blending E10 & E15.
- For example: If your E85 is seasonally adjusted, blend percentages from each tank must be adjusted each time blend changes.
- Octane of finished blends should also be verified, as hydrocarbon portion of E85 can vary.
- It is ultimately the responsibility of the dispenser owner.

RFA RENEWABLE FUELS ASSOCIATION

State vs Federal

- Make sure that you meet both before offering any new fuel.
- Being “approved” by your state does not mean you are “registered” or “approved” at the federal level.
- We want you to do it right! If you have questions, please contact us, we will help you do it correctly.

RFA RENEWABLE FUELS ASSOCIATION

Equipment Cost

RFA RENEWABLE FUELS ASSOCIATION

PEI Report for USDA - Approximate Cost for E15 Readiness

- Five different dispenser scenarios (cost/dispenser):
  - Currently compatible: $1,167.
  - Not compatible, upgrade to UL87A-25: $4,192.
  - Not compatible, replace all with new: $20,437.
  - Stand-alone E15: $31,775.
  - New site, E85-compatible blender pumps: $10,901.
  - Add ~$110,000, if tank needs added/replaced (10,000 gal).
- Cost can be minimal to offer E15, first retailer's only cost was to labor to install new labels.
- There are options to minimize costs, conversions, trade-ins, incentives.
- Report did not include pricing on tank linings, which would lower cost significantly over replacing a tank.

RFA RENEWABLE FUELS ASSOCIATION

Incentives

RFA RENEWABLE FUELS ASSOCIATION

Incentives

Various incentives still available, all can be explored at www.BYOethanol.com, click on incentives:

- Federal:
  - USDA Renewable Energy for American Program (REAP): RENEWED, BUT…
    - Blender pumps stripped from language.
  - Alt Fuels Infrastructure Tax Credit: EXPIRED.
  - VEETC (Ethanol Subsidy): EXPIRED.
- State Examples.
- Local Examples:
- Talk with your accounting personnel.

RFA RENEWABLE FUELS ASSOCIATION

Cost Comparison

- If you are already need to upgrade your dispensers, it may cost you more to NOT offer more ethanol-blended fuel!
- Not a life long commitment, if the customers and additional gallons do not appear, you can always return to original product offering.

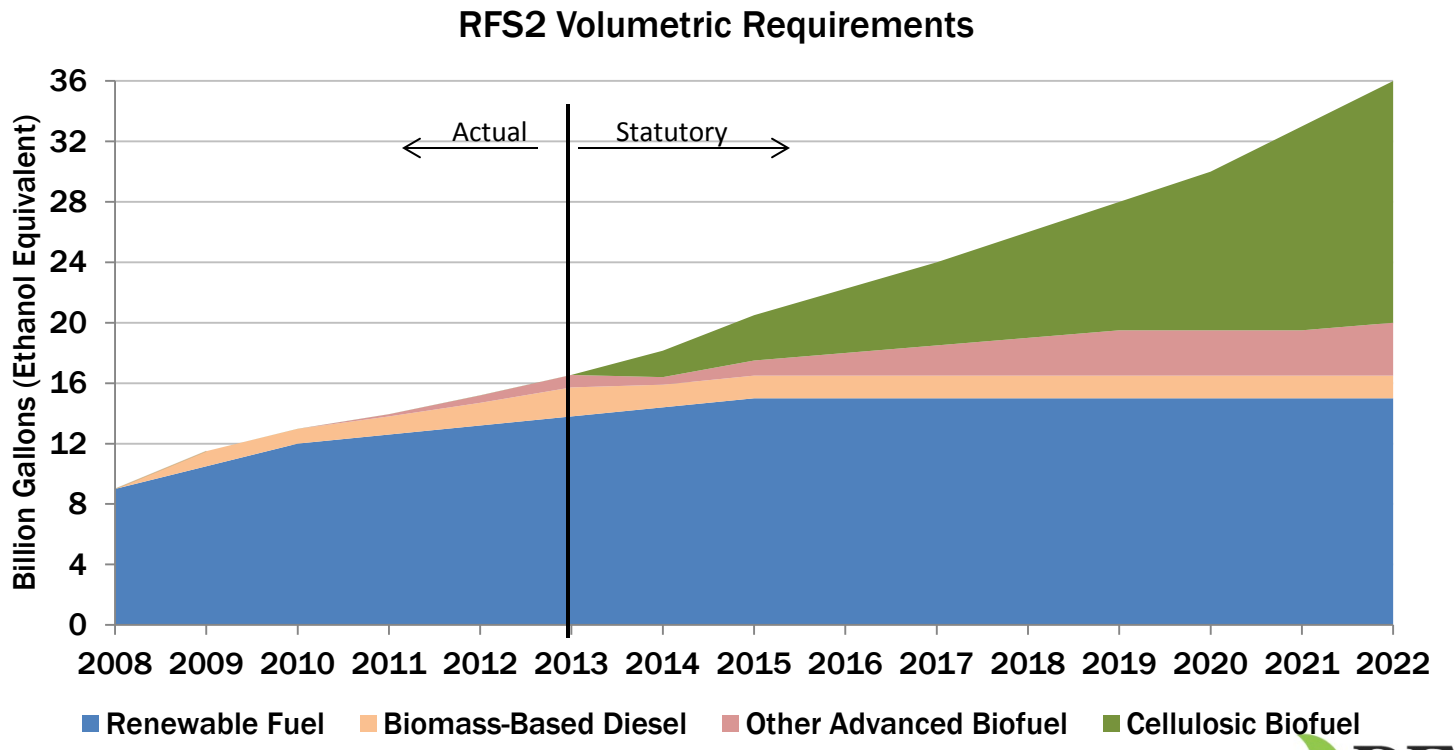
RFA RENEWABLE FUELS ASSOCIATION

RINs

RFA RENEWABLE FUELS ASSOCIATION

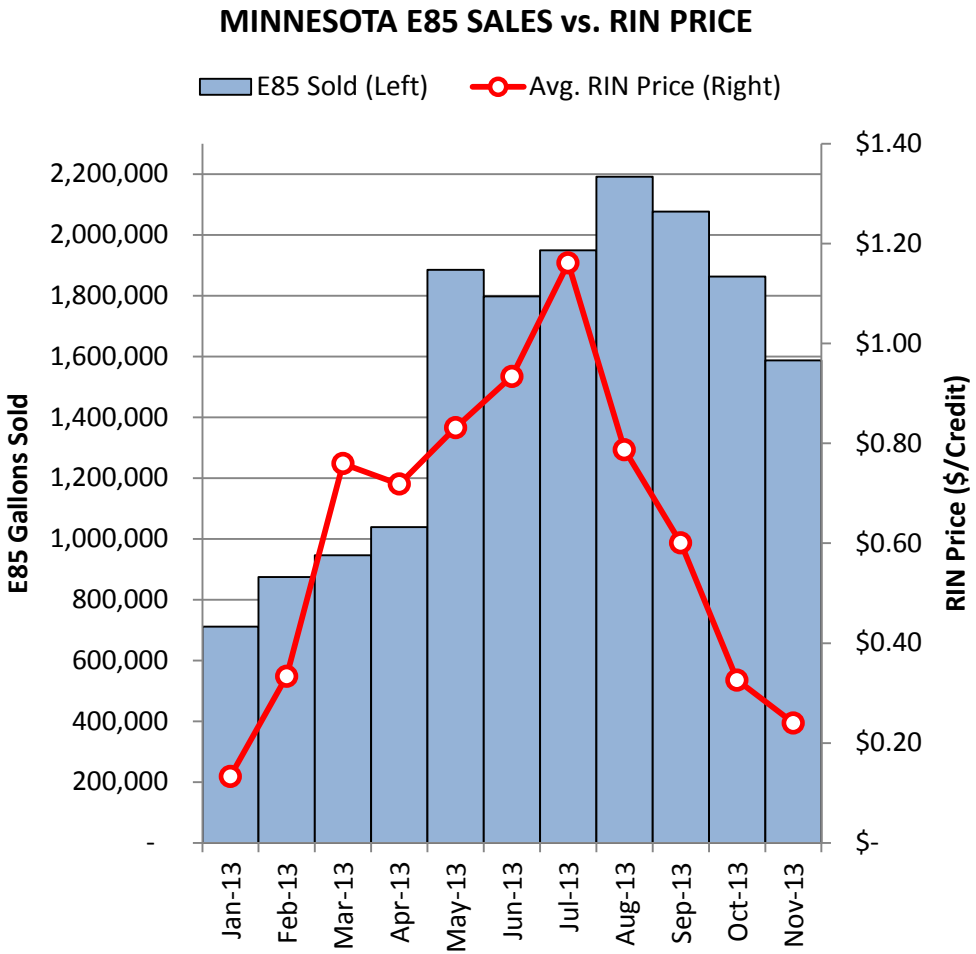
The Renewable Fuel Standard

- Intent of RFS is to eliminate the chicken or egg dilemma by guaranteeing a growing market for ethanol and other renewables.
- The RFS program's RIN mechanism stimulates both biofuel production and investment in refueling infrastructure.



RFA RENEWABLE FUELS ASSOCIATION

Evidence that RINs were working



- E85 pumps installed at 200+ new locations in 2013 (7% increase).
- Murphy USA recently announced plans to install E15 and E85 distribution at multiple locations.
- MAPCO announced plans to install 800-1,000 E15 and E85 pumps at roughly 100 stations.
- Protec had plans to install 450 new E85 or blender pumps—*plans were suspended upon release of EPA's proposed rule.*

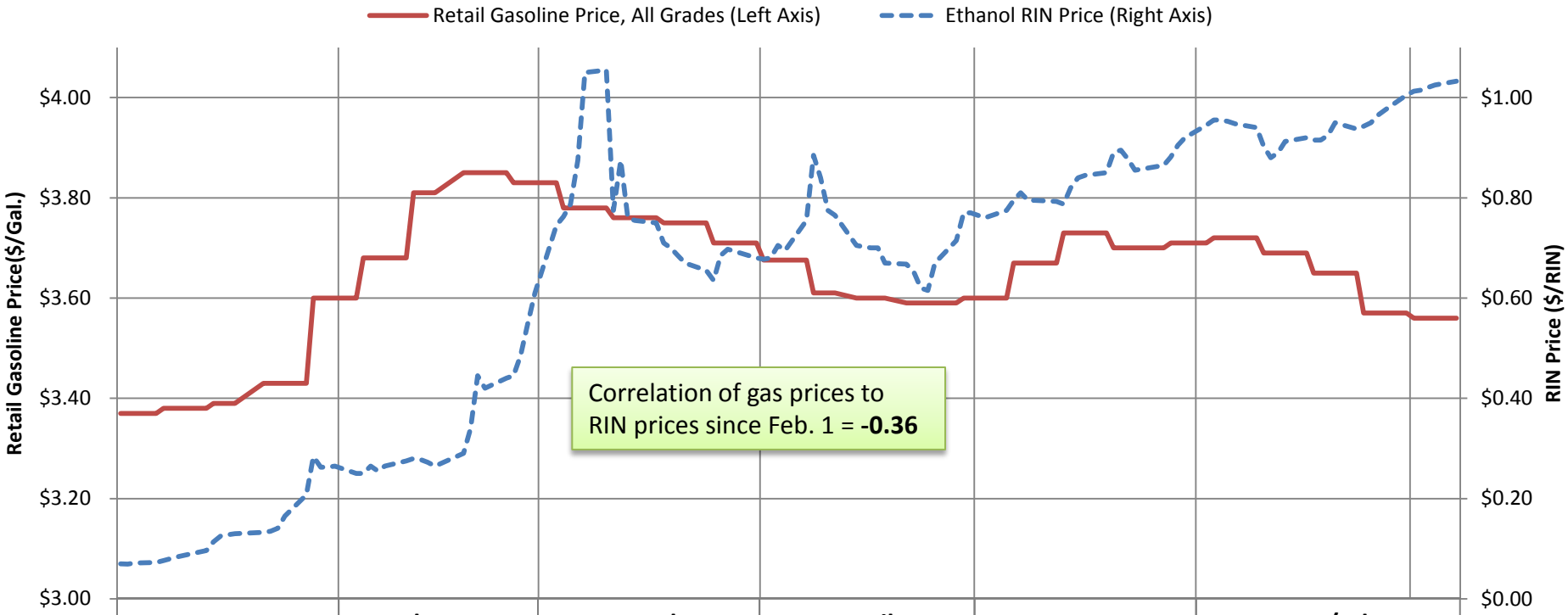
RFA RENEWABLE FUELS ASSOCIATION

There is absolutely no correlation between retail gas prices and ethanol RIN prices

- February **surge in gas prices preceded** the escalation of RIN prices
- **Gas prices were falling** when RIN prices spiked in March

- Gas prices & RIN prices have moved in **opposite directions** since June
- July gas prices are at a **5-month low**, while RINs are relatively high

2013 Weekly Retail Gasoline Prices and Daily RIN Prices



January
Gasoline and RIN prices relatively stable until end of month.

February
Gas prices **rise** through mid-Feb., while RIN prices are **flat**. RIN prices rise sharply in late Feb., as gas prices begin to **recede.**

March
Gas prices **fall steadily** through March**,** while RIN prices inexplicably spike early in the month. RIN prices plunge in second half of March.

April
Gas prices **continue to fall** through April**,** while RIN prices see a spike early in the month, then a steady slide. RIN prices begin to rise again late in April.

May
Gas prices **rise** in first half of May due **to refinery shutdowns.** RIN prices generally flat until mid-month, then gradually rise—while gas prices stay flat.

June/July
Gas prices and RIN prices move in **opposite directions**, with gas prices trending lower and RINs moving gradually higher. Retail gas prices in early July are the same as late Jan.; RIN prices are four times higher.

Blending Economics

RFA RENEWABLE FUELS ASSOCIATION

What's in it for the marketer?

	Prices	E0	E10	E15	E85
Gasoline	**$2.6800**	$2.6800	$2.4120	$2.2780	$0.4020
Ethanol	**$1.9400**	$0.0000	$0.1940	$0.2910	$1.6490
RIN **	**$0.4800**	$0.0000	$0.0480	$0.0720	$0.4080
Net Product Cost (w/RIN)		$2.6800	$2.5580	$2.4970	$1.6430
Fed Tax - Gas	$0.1840	$0.1840	$0.1840	$0.1840	$0.1840
State Tax	$0.2800	$0.2800	$0.2800	$0.2800	$0.2800
TOTAL COST		**$3.1440**	**$3.0220**	**$2.9610**	**$2.1070**

Spot Prices, February 10, 2014.

** This works when:

1) Retailer is able to peel off the RIN and sell it for the OPIS posted price on the open market, OR
2) E85 marketer peels the RIN and is willing to pass through the entire savings to retail.
3) Blender keeps RIN for later sale, all or part of RIN value reflected in lower fuel cost to retailer.

RFA RENEWABLE FUELS ASSOCIATION

Blending Economics

		% of Overall Sales	Monthly Volume	Margin	Profit/Blend	Total	
			100,000				
Current	Premium	5%	5,000	$0.10	$500	$500	**Current**
Option	E15	20%	20,000	$0.10	$2,000	$4,000	**Option**
	E85	10%	10,000	$0.20	$2,000		

In this scenario, ethanol option can potentially add $3,500/month!

RFA RENEWABLE FUELS ASSOCIATION

Your Rights

RFA RENEWABLE FUELS ASSOCIATION

Petroleum Marketing Practices Act

No franchise-related document entered into or renewed on or after December 19, 2007, shall contain any provision allowing a franchisor to restrict the franchisee or any affiliate of the franchisee from:

- installing on the marketing premises of the franchisee a renewable fuel pump or tank;
- converting an existing tank or pump on the marketing premises of the franchisee for renewable fuel use;
- advertising (including through the use of signage) the sale of any renewable fuel;

RFA RENEWABLE FUELS ASSOCIATION

Petroleum Marketing Practices Act -2

- selling renewable fuel in any specified area on the marketing premises of the franchisee (including any area in which a name or logo of a franchisor or any other entity appears);
- purchasing renewable fuel from sources other than the franchisor if the franchisor does not offer its own renewable fuel for sale by the franchisee;
- listing renewable fuel availability or prices, including on service station signs, fuel dispensers, or light poles; or
- allowing for payment of renewable fuel with a credit card,

RFA RENEWABLE FUELS ASSOCIATION

Petroleum Marketing Practices Act - 3

- Also, exception to 3-grade requirement:
  - No franchise-related document that requires that 3 grades of gasoline be sold by the applicable franchisee shall prevent the franchisee from selling a renewable fuel in lieu of 1, and only 1, grade of gasoline.
- If your franchise agreement states otherwise, and you want to offer E85, it is time to contact your brand rep.

RFA RENEWABLE FUELS ASSOCIATION

FTC Investigating

- RFA asked all federal agencies for a review in Spring 2013.
- Senators Klobuchar & Grassley asked AG Holder and FTC to review in August 2013.
- FTC is now “examining possible anti-competitive by oil companies that limit consumer access to homegrown renewable fuels.”
- More to come…

RFA RENEWABLE FUELS ASSOCIATION

The Future

RFA RENEWABLE FUELS ASSOCIATION

Advanced ICEs and high-octane fuels as a pathway to CAFE/GHG compliance

- Meeting 2017-2025 CAFE/GHG standards will require revolutionary changes in Internal Combustion Engine (ICE) and vehicle technologies.
- OEMs are pursuing a diverse portfolio of technologies to improve vehicle efficiency and achieve compliance.
- Use of a high-octane fuel in advanced engines has emerged as one promising pathway to compliance:
  - *Higher compression.*
  - *Direct injection.*
  - *Engine downsizing.*
  - *Turbocharging.*

RFA RENEWABLE FUELS ASSOCIATION

Ethanol as a source of octane in high-octane future fuels

- Ethanol has characteristics that make it highly attractive as the source of octane in a high-octane future fuel (20-40% ethanol by volume):
  - Significantly increases RON (95-102).
  - High heat of vaporization/charge cooling effects.
  - Lowers CO2 emissions at part-load.
  - Reduces toxics emissions (benzene & 1,3-butadiene).
  - Reduces PM emissions.
  - Reduces RVP (vs. E10).

See:

1. *Stein et al/SAE Int. J. Engines/Volume 6, Issue 1 (May 2013);*
2. *J.E. Anderson et al. "High Octane Number Ethanol-Gasoline Blends: Quantifying the Potential Benefits in the United States," Fuel 97:585-594, 2012*

RFA RENEWABLE FUELS ASSOCIATION

Misinformation

RFA RENEWABLE FUELS ASSOCIATION

Reality of E15

- 6 million miles of testing before approval – no issues.
- 65+ million miles of consumer testing after approval – no issues.
- NACS study released in June 2013:
  - 26% of consumers knew what E15 is.
  - 59% said they would try it.

RFA RENEWABLE FUELS ASSOCIATION

Reality of E15

- Fuels America Poll Data:
  - After reading a short description of E15, a strong majority (82%) supports having it available at local gas stations, with less than one-in-five (18%) opposing it.
  - More than three-quarters (76%) of Americans would also support higher blends, such as E20 or E30 at their local gas stations.
  - Nearly four-in-five (79%) Americans say the fact that oil companies are attempting to block the availability of E15 to many gas stations across the country is bad for consumers.

RFA RENEWABLE FUELS ASSOCIATION

API & AAA

- API paid CRC to perform a study on E15.
- Study is widely used, and most believe it is the only study ever performed.
- Study is just 1 of 43 total that cover E15.
- RFA contracted NREL to review, review findings here: http://bit.ly/1fFIKov

RFA RENEWABLE FUELS ASSOCIATION

NREL Review

- **Failure to use E10 as a control fuel.** Engines that "failed" on E20 or E15 were subsequently tested on E0, but not on E10 (despite the fact that E10 is the predominant in-use fuel today). This approach presumes that failures were related to ethanol content, rather than any number of other factors that could have caused the failure.
- **One of the engines that "failed" on E15 also failed the test on E0.** Quite obviously, ethanol content had nothing to do with the failure for this engine. Yet, CRC discarded the data from this vehicle for the study's statistical analysis.
- **Cherry-picked engine sample**. Despite the fact that most modern engines employ technologies that improve valve and valve set performance, CRC chose engines that do not use these technologies and, thus, were "most likely to have valve problems." According to NREL, the vehicles chosen "…included several engines already known to have durability issues, including one that was subject to a recall involving valve problems when running on E0 and E10."

RFA RENEWABLE FUELS ASSOCIATION

NREL Review

- **Lack of transparency in test cycle schematic**. According to NREL, "[t]he durability test cycle schematic published in CRC's report does not contain enough detail to allow it to be independently reproduced."
- **Test cycle's maximum speed limit increased likelihood of valve damage.** The CRC test cycle enforced a low maximum engine speed, which "…had the effect of increasing the likelihood of valve damage, because low speed operation may decrease valve rotation rates…"
- **Faulty leakdown failure criteria**. Most of the "failures" on E15 and E20 were related to engines that did not pass an arbitrary cylinder "leakdown" test. While other tests in the CRC study used established standards from OEMs and EPA, the leakdown test utilized arbitrary criteria with no scientific basis. According to NREL, "CRC selected a 10% leakdown failure limit, more restrictive (50% below) than that of the lowest value specified by OEMs for engines in the study."
- **Incorrect use of leakage tester tool.** The manufacturer of the leakage tester used states that "no cylinder will maintain 0% leakage" and that **"**this tool is best used to compare a suspect cylinder to a known good cylinder on the same engine." However, the CRC test used the tool to measure leakage compared to an arbitrary failure criterion of 10%.
- **Inappropriate statistical analysis**. The CRC study used assumed values (i.e., "dummy data") for vehicles that were not actually tested. These dummy values demonstrated consistent bias in relation to the question that the analysis was intended to determine.

RFA RENEWABLE FUELS ASSOCIATION

Conclusion

RFA RENEWABLE FUELS ASSOCIATION

Why offer E15 or E85?

- Differentiate your company.
- Average RUL sales are 87.2% today, E15 can change that. Average E15 sales are 20% alone, think of combo with E85.
- Make more margin while lowering consumer price at the pump.
- Increase overall fuel sales.
- Increase overall in-store sales.

RFA RENEWABLE FUELS ASSOCIATION

What's in it for you?

- More product choices for consumers on same footprint.
- Typically uses existing tanks and pipes – huge cost savings.
- Ethanol plants can sell direct – bypass terminal markup.
- Flexibility for future approval of mid-level ethanol blends.
- Pump paid for by sale of all products, not just E85.
- Faster inventory turnover, protection against market swings.
- If right equipment is purchased, E15 ready!
- Potential of RINs.

RFA RENEWABLE FUELS ASSOCIATION

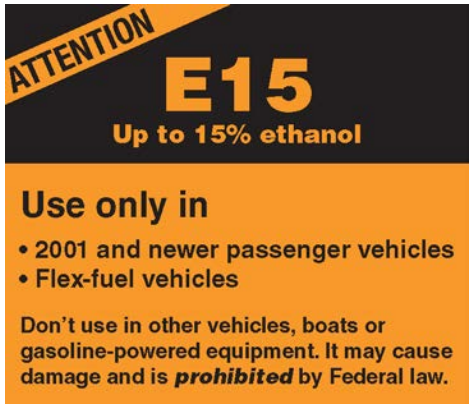
What's in it for you?

We will help you promote it!

- Multiple websites: ChooseEthanol.com; EthanolRFA.org and more.
- Garmin & TomTom Points of Interests.
- Mobile App for Android or Apple devices.
- Promotional Materials & Consumer Education for stations.

RFA RENEWABLE FUELS ASSOCIATION

Free Dispenser Labels



RFA RENEWABLE FUELS ASSOCIATION

Tools for Coordinators

- All at no cost from RFA:
  - We have dispenser labels and promotional materials for retailers.
  - We have our NEW Industry Outlook & Pocket Guide.
  - We will conduct retailer workshops in your area.
  - We will answer questions anytime, or track down answers.
- Don't forget about Clean Cities Ethanol Handbook: http://www.afdc.energy.gov/uploads/publication/ethanol_handbook.pdf

RFA RENEWABLE FUELS ASSOCIATION

Questions?

Robert White

Renewable Fuels Association

rwhite@ethanolrfa.org

(402) 391-1930

Twitter: @fuelinggood

www.EthanolRFA.org

www.BYOEthanol.com

www.ChooseEthanol.com

RFA RENEWABLE FUELS ASSOCIATION